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ABSTRACT

A study examined the influence of the color of an individual's clothing and hair on the feelings and attitudes of others. Subjects, 246 college students, were shown 20 slides, one at a time, and asked to answer 15 questions for each slide. The slides were of four magazine models, two male, two female, with one blonde and one brunette of each sex. Their pictures were copied and dressed in business suits of the same design cut from construction paper in five different colors: black, blue, brown, tan, and green. Questions assessed attitudes toward the slide pictured and attributes associated with the model. Respondents also speculated as to the model's occupation. Results showed that the color of clothing influenced the "welcomeness" and "comfortableness" the respondents felt toward the models as well as the traits they attributed to them. Hair color affected the comfortableness toward the model but not the welcomeness. It also influenced some perceived attributes but not others. Blue and black were the most attractive colors of clothing. (The question form and tables of results are included.) (JL)

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THE EFFECT OF COLOR ON COMMUNICATION
or
"A COURSE OF A DIFFERENT COLOR"

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ABSTRACT

Numerous studies indicate the extent to which nonverbal communications dominate the communication process. Color as a part of nonverbal communications has not been thoroughly researched; however, through a study conducted in a southwestern university, it was found that colors are associated with attitudes and attributes of individuals and that people wearing a specific color are associated with certain professions.

This paper will explore the effects of communication as influenced by the color an individual is wearing, the color of one's hair, or the color(s) used in a room.

INTRODUCTION

Communication is one of the most important aspects of the daily lives of people and is especially vital in the efficient operation of business management. Over 50% of the face-to-face communication that takes place between people is nonverbal; yet color as a part of this area has not been extensively studied. There are two major reasons for this. First, measurement is exceedingly difficult. One is not sure whether or not one is assessing the concepts and constructs desired or if respondents are merely providing "appropriate and acceptable" responses. Second, the issue of ethics is not to be ignored. A recent article argues that the researcher is using questionable ethical judgements if information is obtained from people without their consent or knowledge [1]. The researcher faces a difficult dilemma; conducting ethical research while tapping below the level of awareness variables.

However, given the extent to which nonverbal communications dominate the communication process, it is important that steps be taken to overcome both measurement difficulties and to avoid unethical research practices. This article endeavors to handle both problems.

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This article will explore the impact of color on the communication process. Specifically, emphasis will be placed on discovering if subjects are initially attracted to other people and if they attribute certain characteristics to them based on the color of clothing worn or the color of the individual's hair. It is the contention of the authors that the color of one's clothing and hair communicates nonverbally to the people with whom one interacts in face to face communications.

LITERATURE REVIEW

There is a paucity of information on the impacts of color on the communication process. A review of the psychological and social-psychological literature resulted in almost no research studies. The few that were found tended to have an ergonomics (man-machine) focus and were not germaine to the current topic. A review of the sociological literature revealed a limited number of studies. The primary focus of these studies was on race and ethnic background rather than color of apparel and hair. A review of the business literature was also unfruitful. Except in the marketing area, there appears to be little business research in the general area of color. This is especially true when color is linked to the communication process.

There has, however, been some research done in the area of color and its impact on individual behavior. In 1975, Wysecki argued that color has strong influences on individuals [2]. He defines the concept of color harmony as the tendency for two or three colors seen in neighboring areas to produce a pleasing effect. Further, color harmony is a matter of personal likes and dislikes. Wysecki concludes that individual emotional responses vary from one person to another and over time within the same person; thus, colors do influence meaning and the communication process in face to face interactions. This same idea is also purported by Costley when he asserts that each color in the color spectrum has meaning associated with it [3]. The meanings are learned early in life and cause certain unique but uniform responses when individuals are confronted with that color.

While color research has not received widespread attention in the United States, it has in Europe. As early as 1947 Luscher was perfecting his still controversial color test [4]. His theory contends that certain colors represent common values to all people. He concluded from his research that gray was associated with feelings of noninvolvement, blue with calmness, green with resistance to change, and red with desire. While some have questioned his methodology in that it involves self reporting, the number of respondents to the research instrument (n=38,000) tends to counter balance this weakness.

Another study defined color as "a sensation, a mental and emotional interpretation of what the eye records" [5]. Physiologically, reactions to color through the eye are varied and intriguing. It has been shown that color can affect muscular tension,

brain wave activity, heart rate, respiration, and other functions of the body [1]. Psychologically, color arouses emotions and aesthetic reactions which tend to be impulsive [1]. Colors can be associated with two general moods. The color red and its analogous hues tend to possess warm, active, and exciting qualities. The colors of blue, violet, and green tend to have cool, passive, and calming properties [1]. Thus it becomes clear that reactions to colors have both physiological and psychological properties. The impact which colors have on a particular communication exchange may be out of the awareness of both the sender and receiver; nevertheless, color seems to influence the process.

This influence has received increased interest in the popular press recently. An article by Smith reported that the color of a room influences muscular strength of individuals incarcerated in the room [6]. Rooms in prisons and juvenile delinquent detention centers were painted bright pink with no other distracting stimuli such as pictures, windows, etc. in the room. When screaming, violent juveniles and uncontrollable prisoners were placed in these rooms, less than 1% could withstand the "pink effect." Within 15 minutes, most had become calm and controllable without the use of physical or chemical restraints. This phenomena holds even if the person is colorblind. The eyes pick up color from the reflection of light waves. The length of the wave of reflected light influences a number of bodily functions including the secretion of adrenalin. This slows the heart beat which has a calming effect on the individual. Further research and documentation is needed before the reason as to why this reaction occurs can be answered. Whatever the reason, color does influence an individual's behavior and, hence, face to face communication.

PROCEDURE

Data was gathered from 246 sophomore and junior students at a southwestern university. Twenty 35mm slides were prepared by taking pictures of models cut from magazines. These models were dressed in business suits of the same design cut from construction paper. Five different colored suits were constructed: black, blue, brown, tan, and green. Four different models were used in the study. Two of the models had blonde hair, one was male and one was female; the other two were brunette, again one male, one female.

The respondents were shown one slide at a time and were asked to answer 15 questions while viewing the slide.

The first two questions asked the respondents about their attitudes toward the slide pictured. The next 12 questions related to attributes which the respondents might associate with the model. These 14 questions utilized a nine point bipolar scale to assess the respondents' answers. Finally, the respondents were asked to speculate as to the model's occupation.

TABLE I

Respondent Questionnaire

If you were to meet this person for the first time, how would you feel? (Circle the appropriate number):

1.	Very uncomfortable	1	2	3	4	5	6	7	8	9	Very comfortable
2.	Attracted to the person	1	2	3	4	5	6	7	8	9	Not attracted to the person

What characteristics would this individual likely possess?

3.	Aloof	1	2	3	4	5	6	7	8	9	Open
4.	Honest	1	2	3	4	5	6	7	8	9	Dishonest
5.	Intelligent	1	2	3	4	5	6	7	8	9	Unintelligent
6.	Introverted	1	2	3	4	5	6	7	8	9	Extroverted
7.	Low achiever	1	2	3	4	5	6	7	8	9	High achiever
8.	Not sophisticated	1	2	3	4	5	6	7	8	9	Sophisticated
9.	Pessimistic	1	2	3	4	5	6	7	8	9	Optimistic
10.	Powerful	1	2	3	4	5	6	7	8	9	Powerless
11.	Self Confident	1	2	3	4	5	6	7	8	9	Lacks Self Confidence
12.	Trustworthy	1	2	3	4	5	6	7	8	9	Not trustworthy
13.	Unfriendly	1	2	3	4	5	6	7	8	9	Friendly
14.	Witty	1	2	3	4	5	6	7	8	9	Dull

In what occupation do you think this individual would likely be employed? (Choose only one)

_____Doctor
_____Attorney
_____University Professor
_____Insurance Agent
_____Supervisor
_____Support Staff (clerical)
_____Middle Management
_____Entertainer
_____Government Official
_____Banker
_____Politician
_____Top Level Executive
_____Salesman
_____Accountant
_____Personnel Manager

In order to reduce respondent bias, positive and negative polar adjectives were randomly ordered. Four different presentations of the slides were shown, and in each presentation the slides were in a different random order to further reduce respondence bias.

Care must be taken before the findings reported are generalized to other settings. First, the respondents were college students. Second, the data is cross-sectioned rather than longitudinal. Finally, the length of the measuring instrument may have resulted in some respondent bias due to tiredness. Nonetheless, the findings are supportive of the literature reviewed.

PURPOSE OF THE STUDY

The purpose of the study was to determine the influence of color as a nonverbal variable in communications. Does color influence feelings or attitudes towards others with whom we communicate? Do colors stimulate positive or negative feelings? Does the color of our hair, of the clothes we wear, of the room in which the communication takes place affect communication?

Using these hypotheses, we feel the study demonstrates the relevancy of colors on business communications.

Hypotheses

The following hypotheses were developed.

H1: Respondents, when viewing 35mm slides of models, will not have significantly different attitudes toward the models when the models wear different colored suits.

H2: Respondents, when viewing 35mm slides of models, will not attribute significantly different characteristics to the models when the models wear different suits.

H3: Respondents, when viewing 35mm slides of models, will not have significantly different attitudes toward the models when the models have different colored hair.

H4: Respondents, when viewing 35mm slides of models, will not attribute significantly different characteristics to the models when the models have different colored hair.

THE FINDINGS

Two tables aid in evaluating the proposed hypotheses. Using the SAS analysis of variance programs, the following table was contructed. The data rejects the first hypothesis. The color of clothing

TABLE II

Analysis of Variance Between Color of Clothing And Color of Hair of Models Viewed And Attributes Associated With And Attitudes Toward Those Models

	COLOR OF CLOTHING			COLOR OF HAIR	
	F Score	Probability	R Square	F Score	Probability
ATTRACTIVENESS					
Comfortableness	7.4	.0001	.0184	9.25	.01
Not Attracted To	8.39	.0001	.0164	.77	NS
ATTRIBUTES					
Openness	6.30	.0001	.0258	1.94	NS
Dishonesty	4.30	.01	.0130	.01	NS
Unintelligent	9.44	.0001	.0133	.71	NS
Extroverted	4.48	.01	.0120	2.75	NS
High Achiever	5.18	.001	.0158	6.14	.05
Sophisticated	12.83	.0001	.0234	3.27	NS
Optimistic	8.31	.0001	.0209	12.03	.001
Powerless	7.61	.0001	.0155	9.43	.01
Lacks Self-Confidence	6.85	.0001	.0117	3.71	NS
Not Trustworthy	10.69	.0001	.0163	.07	NS
Friendly	9.35	.0001	.0288	4.06	.05
Not Witty	6.60	.0001	.0179	7.82	.01

worn by a model influenced the attitudes of the respondent toward the model. Both the welcomeness and comfort which respondents felt toward the models were significantly related to the color of clothing worn by the model.

The color of clothing worn by the models also affects the traits which respondents attributed to a model. The degree to which each of the characteristics were attributed to a particular model was significantly related to the color of clothing worn by that model. Therefore, the data also rejects the second hypothesis. One would conclude that the color of clothing worn by the models influenced respondents' attitudes toward them and resulted in viewers attributing varying characteristics to them.

The next two hypotheses dealt with the respondents' attitudes toward the model's hair color and the attributes they associated with the color. Specifically, the third hypothesis was concerned with the models' hair color and attitudes of respondents toward the model. Hair color affected the comfortableness which the respondents felt toward the model, but not the welcomeness which they perceived. In this light, the third hypothesis can be neither accepted nor rejected.

The final hypothesis was concerned with the impact of hair color in determining attributes associated with the models. Hair color had a significant influence for five of the twelve attributes. For the remaining seven attributes, the color of the model's hair did not significantly influence the respondents' viewpoints. The fourth hypothesis is accepted as the models' hair color did not influence respondents to attribute significantly different characteristics to the models.

Table III reveals how each color of clothing influenced the attitudes which respondents felt toward the model and attributes which they associated with it.

As will be recalled, the color of clothing significantly influenced both attitudes and attributes which the respondents associated with the models. By looking at the differences between the means, it is possible to discover which colors seemed to be the most attractive and which seemed least attractive to the respondents. In general, the black and blue colored clothing seemed to have the most positive impacts on the respondents. The model was perceived to be more open, honest, trustworthy, and extroverted when dressed in black or blue. Further, these models were viewed as being more sophisticated, optimistic, and witty. When the models were dressed in either brown or tan, (similar or opposite?) responses were noted. The model was seen as being less intelligent, less oriented toward achievement, lacking in self-confidence, and having less power. Few general conclusions emerged when the models were dressed in green-colored clothing. Mainly, the model was viewed as being less friendly when wearing green.

TABLE III

Mean Values of Attitudes Toward and Attributes Associated With Models Wearing Different Colored Clothing

	COLOR OF CLOTHING				
	Black	Blue	Brown	Green	Tan
ATTITUDE					
Comfortableness	5.3840**	5.3639**	5.0243	5.0501	5.0534
Not Attracted To	5.0939	4.9715	5.3194**	5.3359**	5.4804**
ATTRIBUTES					
Openness	5.5388**	5.4849**	5.2798	5.1605	5.2365
Dishonest	4.3139**	4.3826*	4.5343	4.6154	4.5872
Unintelligent	3.8819	4.0079	4.2987**	4.0218	4.3138**
Extroverted	5.6948*	5.7101**	5.5125	5.4129	5.4996
High Achiever	6.2800	6.3179	6.0167**	6.1918	6.0654*
Sophisticated	5.9973**	6.0765**	5.5650	5.7952	5.6168
Optimistic	5.9355**	5.9757**	5.6250	5.7052	5.6076
Powerless	4.4831	4.6616	4.8772**	4.6521	4.9052**
Lacks Self-Confidence	3.7989	3.9220	4.1978*	4.0831	4.1528*
Not Trustworthy	4.2113**	4.2633**	4.4987	4.6675	4.6063
Friendly	6.0631	6.2886**	5.9841	5.7660**	5.9204
Dull (Not Witty)	4.5979**	4.7391*	4.9605	4.9289	4.9948

Note: Mean differences tested for significance using Tukey's HSD procedure.

* $p \leq .05$

** $p \leq .01$

CONCLUSIONS

The influence of the color of clothing on attitudes toward and attributes associated with models were significant at a very high level. The amount of variance explained was small. Thus, while generalizations must be made carefully, several conclusions and implications seem appropriate. First, the color of one's clothing will likely influence attitudes of others. That is, the color of one's clothing will influence the degree to which one is liked and accepted or whether one is held at arm's length. Second, the color of one's clothing is likely to result in having certain characteristics or attributes associated with a person. These associations will be made before any verbal dialog has been exchanged between the sender and receiver in a communication transaction. Third, the color of one's hair does not seem to contain the same communication properties as the color of clothing worn by the individual.

There are two primary implications from the study. First, the people with whom one interacts are influenced by the color of the clothing, but are not aware of the impact which the individual's clothing is having on the receivers. Further, it is unlikely that the receiver could verbalize why he/she felt or attributed certain characteristics to the sender in a particular communication exchange. Nonetheless, it appears that color of clothing worn does influence the communication process between two individuals. Second, more research needs to be done. The small r square scores may indicate that other variables better explain the variance found in the scores. Nonetheless, the high significance levels indicate that the color of clothing does influence the communication process and should receive more research attention.

Should further research on color support this study's findings, it may become necessary to include in the business curriculum a course entitled "Dress for Success." Perhaps there is something to seeing life through rose colored glasses after all!

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